

REMARKS/ARGUMENTS

Claims 14-30 are pending in the instant application. The following remarks are believed to be fully responsive to the Office Action.

Claim rejections – 35 U.S.C. § 103

Claims 14-15, 25 are rejected under 35 U.S.C. 103(a) as not being patentable over Kuhn et al in view of U.S. Patent No. 5,553,619 to Prince (“Prince”) or U.S. Patent No. 5,382,421 to White et al (“White”). This rejection is respectfully traversed.

The object of the instant invention is to guide the placement of an invasive device through the vasculature of the body. This is done by first introducing a contrast agent into the vasculature, introducing the invasive device into the vasculature and then creating an MR image to visualize the device and to facilitate guiding the placement of the device in the body.

Visualizing and guiding the placement of an invasive device is also mentioned in Kuhn. Kuhn solves this problem by filling the device itself with a contrast agent. Kuhn neither discloses, teaches, or suggests that the solution can be achieved by injecting a contrast agent to the part of the vasculature that is surrounding the device. In fact, Kuhn clearly states

that it is highly undesirable to reproduce blood flowing around the device within the artery in high-resolution MR images, (see column 4, lines 37-41). Kuhn thereby teaches away from visualizing the device by enhancing the relaxation properties of the blood relative to the invasive device. Kuhn does not disclose, teach, or suggest using a contrast agent to enhance the relaxation properties of the blood surrounding the device.

According to Kuhn, only when the device has been placed correctly in the body, the contrast agent can be injected from the device to the vasculature surrounding the device. This injection of the contrast agent serves a completely different purpose than visualizing the device and safely guiding the placement of the device. As an example, according to Kuhn, the reason for injecting the contrast agent to the vasculature can be to form images of the coronary arteries (see column 10, lines 29-33). Even though the injection is done for a different reason than visualizing and guiding the placement of the device, the device will inherently be visualized. By following the teaching of Kuhn, the device will only be visualized when it has already been placed correctly in the body. In the present invention the injection of contrast agent and visualization of the device takes place before the device has been placed correctly, in order to achieve correct placement of the device. This is clearly pointed out by the present claim 14 stating that “using imaging procedure signals.....so as to visualize said device on said MR image to guide the placement of the device in the body”. Even though the method of Kuhn inherently visualizes the invasive device when it has been placed correctly, it would not be obvious to the person skilled in the art that such

visualization by injecting a contrast agent to the vasculature could be used to guide the actual placement of the device in the body.

On page 2 of the Office Action dated November 6, 2006 ("Office Action"), the Examiner holds that it would be obvious to one skilled in the art to modify Kuhn such that the blood pool contrast agent is administered by i.v. injection, and that such a modification involves the substitution of one known method for administering a contrast agent to an area surrounding the catheter tip for another. Applicants hold that Kuhn does not teach a method of administering a contrast agent to the area surrounding an invasive device for the purpose of visualizing and guiding the placement of the device. By modifying Kuhn such that the contrast agent is administered to the area surrounding the device in an alternative way, one would not achieve the object of guiding the placement of the device because the device would already have been placed correctly in the body. For the purpose of guiding the placement of the device in the body Kuhn only suggests keeping the contrast agent inside the device. Without thinking of achieving the same objective by injecting contrast agent to the vasculature surrounding the device, one would not look to find alternative methods of administering a contrast agent to the vasculature of a body. In other words, one would not look to Prince or White teaching a method of administering a contrast agent to the vasculature by i.v. injection.

Furthermore, Applicants hold that Kuhn does not suggest visualizing and guiding the placement of an invasive device by injecting a contrast agent to the vasculature surrounding

the device rather than into the device itself. Kuhn administers a contrast agent to the vasculature after the device is placed correctly in the body, whereas the present invention involves administering the contrast agent to the vasculature in order to place the device in the body.

Accordingly, as disclosed in the instant invention, the guiding of the placement of an invasive device in the body in this specific way involves an unobvious step.

In view of the aforementioned, reconsideration and withdrawal of the rejection set forth above is respectfully requested.

Claims 16-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn in view of Prince or White, and further in view of WO 97/25073 to Gunther et al. (“Gunther”). This rejection is respectfully traversed. Claims 16-24 are all dependent on claim 14 and inherent all the limitations set forth in claim 14. Accordingly, Applicants respectfully submit that replacing the contrast agent of Kuhn with the contrast agent disclosed by Gunther would not lead to the instant invention. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 26-27 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn in view of Prince or White, and further in view of U.S. Patent No. 6,045,775 to Ericcson et al. (“Ericcson”). This rejection is respectfully traversed. Claims 26-27 are both dependent

on claim 14 and inherent all the limitations set forth in claim 14. Accordingly, applicants respectfully submit that modifying Kuhn such that the imaging sequences taught by Ericcson would not lead to the instant invention. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 28-30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn in view of Prince ('619) or White et al, and further in view of U.S. Patent No. 5,560,360 to Filler et al. ("Filler"). This rejection is respectfully traversed. Claims 28-30 are all dependent on claim 14 and inherent all the limitations set forth in claim 14. Accordingly, Applicants respectfully submit that modifying Kuhn such that the contrast agent includes iron oxide and flip angles and echo times as set forth in Filler would not lead to the instant invention. Reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

Applicants respectfully submit that the instant application, including claims 14-30, is in condition for allowance. Favorable action thereon is respectfully requested.

Should any other matters require attention prior to allowance of the application, it is requested that the Examiner contact the undersigned.

It is believed that no fees are due with this communication, however, authorization is hereby given to charge any fees which may be due in connection with this communication to Deposit Account No. 502-665.

Respectfully submitted,

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